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General Physics-I, Quiz-2
PHYS1000AA, AB, AC, Fall Semester-106
2017-11-21

St. ID:_____, Name:_____

Chapter -10-11, Serway; ABSOLUTELY NO CHEATING!
Please write down the answers on the blank space or on the back of this paper. Answer should be in english. [ ] indicates the question points.

Q1. (a) Drive the equation of kinetic energy for an object of mass M while it is in angular motion. (b) Suppose you have an analogue watch with 2 cm long minute hand and 1 cm long hour hand. If their mass is 5 mg and 2 mg respectively, calculate the total kinetic energy of them with respect to the rotational axis. [10+30= 40 %]

Q2. If the Dong Hwa University Lake is open for fishing and you drop a fishing pole with angle of 30° according to horizontal axis as shown in figure below, what is the torque exerted by the fish about an axis perpendicular to the page and passing through your hand if the fish pulls on the fishing line with a force **F**= 200 N at an angle 50° below the horizontal? The force is applied at a point 3m from your hands. [30%]
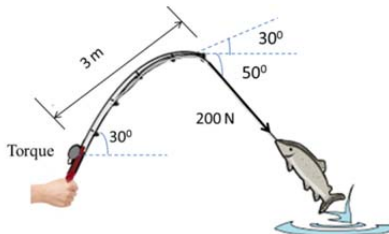
Q3. Is the angular momentum a vector quantity, explain why? If the second hand of your watch is designed with a bob of mass 5g at the end point as shown in figure, calculate the angular momentum of the bob. Let the radius covered by the second hand is 2 cm and takes 60s to travel 1 cycle. [10+20= 30%]

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